

WHAT IS CLAIMED IS:

1. A control method for a multi-cylinder engine that performs compression ignition combustion control or provides control so as to select either the compression ignition combustion or spark ignition combustion, comprising the steps of:

estimating, during an engine operation in the compression ignition combustion mode, the combustion state for each cylinder during the engine operation in the compression ignition combustion mode; and

controlling the combustion state by allowing a variable valve mechanism of the cylinder to increase or decrease a minus overlap amount so as to increase or decrease an amount of internal EGR, if at least either one of the following conditions is estimated, the conditions being that the peak value of the cylinder pressure of at least one cylinder of all the plurality of cylinders is lower or higher than a predetermined value, and that the peak timing of the cylinder pressure is retarded or advanced in relation to predetermined timing.

2. The control method for the multi-cylinder engine according to claim 1, further comprising the step of:

allowing a transmission to change a gear ratio so as to increase or decrease an engine speed, thereby increasing or decreasing the amount of fuel supplied from a fuel injection mechanism to each cylinder per one cycle, if at least either one of the following conditions is estimated, the conditions being that the peak value of the cylinder pressure of at least one cylinder of all the plurality of cylinders is lower or higher than a predetermined value, and that the peak timing of the cylinder pressure is retarded or advanced in relation to a predetermined timing.